Vertex-magic total labelings of union of generalized Petersen graphs and union of special circulant graphs *

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Abstract. Let G be a graph with vertex set $V = V(G)$ and edge set $E = E(G)$, and let $n = |V(G)|$ and $e = |E(G)|$. A *vertex-magic total labeling* (VMTL) of a graph is defined as a one-to-one mapping taking the vertices and edges onto the set of integers $\{1, 2, \ldots, n + e\}$, with the property that the sum of the label on a vertex and the labels on its incident edges is a constant independent of the choice of vertex. In this paper, we present the vertex magic total labeling of disjoint union of t generalized Petersen graphs $\cup_{j=1}^{t} P(n_j, m_j)$, and disjoint union of t special circulant graphs $\cup_{j=1}^{t} C_n(1, m_j)$.

Key words: Vertex magic total labeling, regular graph, generalized Petersen graph, circulant graph.

1 Introduction

In this paper all graphs are finite, simple, and undirected. The graph G has vertex set $V = V(G)$ and edge set $E = E(G)$, and let $n = |V(G)|$ and $e = |E(G)|$.

MacDougall *et al.* [4] introduced the notion of a vertex-magic total labeling. The *vertex-magic total labeling* of a graph G is a one -to-one mapping from

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